

The University of Chicago

LAND UTILIZATION IN DENVER

A PART OF A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE
PHYSICAL SCIENCES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF GEOGRAPHY

1938

By

WILLIAM F. CHRISTIANS

CHICAGO, ILLINOIS

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FOREWORD

This dissertation is an analysis of land utilization in the City and County of Denver, a political unit having a population of 287,861 in 1930 and covering an area of 58.75 square miles. Except in those areas where lands outside the city have a significant effect on the internal land use pattern, the treatment is confined to the corporate area of the city.

The various types of land use are grouped into five major categories and the location and distribution of each category is described and explained. Most of the categories are subdivided in order to give a more explicit presentation. Intensity of land use and significant changes in the land use pattern are discussed in those categories where they are important. A forecast of probable future development of the city for certain types of land use, based on present conditions and trends, is also given.

CHAPTER I.--MAJOR FUNCTIONS OF THE CITY AND GENERAL PATTERN OF OCCUPANCY

The City as a Functional Unit

Denver is the largest city along the eastern front of the

¹This is an abridgment of the author's doctoral dissertation, which in its complete form consists of 262 pages, containing 24 maps, 15 pictures, 2 graphs, and 2 tables. This abridgment presents chapter one in full and the findings and conclusions of the other six chapters which make up the complete work.

This study was first conceived in a course on "Urban Chorology" given by Professor Charles C. Colby at the University of Chicago. Some of the field work was done as early as the summer of 1933, although most of it was carried forward in 1936. The findings and conclusions which are presented, therefore, deal with that period. The writing of the dissertation was carried forward under the general direction of Dr. Robert S. Platt.

Rocky Mountains. Not another city within 500 railroad miles of Denver¹ rivals it in either size or importance. The lands of the city devoted to railroad terminal areas, to wholesaling and jobbing establishments and retail outlets, to small-scale, diversified manufacturing plants, to hotels and sanitarium, and to political, educational, financial, and other institutions of regional and inter-regional importance indicate the principal functions the city performs, functions which have contributed in large measure to the growth and development of Denver.

Railroad terminal point.--Denver is a railroad terminal point for seven railroads, but is not on the main line of any transcontinental road.² Main rail lines pass either north or south of the city. The Union Pacific's main line runs through Cheyenne and takes advantage of the relatively low and not very rugged route afforded by the Wyoming Basin. The Santa Fe skirts the southern end of the formidable mountain barrier.

The transfer of freight and passengers from eastern to western lines and from western to eastern lines has helped to bring about the growth of a break-in-bulk and transshipment function in Denver and the development of the city as a collecting and distributing center for the western portion of the Great Plains and the adjacent Rocky Mountain areas.

Collecting and distributing center.--Denver is the most important collecting and distributing center in the Rocky Mountain states. Omaha, Kansas City, Wichita, and Salt Lake City are Den-

¹The closest large cities to Denver (in railroad miles) are: Omaha, 580 miles; Kansas City, 636 miles; Wichita, 561 miles; and Salt Lake City, 625 miles.

²The seven railroads serving Denver are: the Atchison, Topeka, and Santa Fe; the Chicago, Burlington, and Quincy; the Chicago, Rock Island, and Pacific; the Colorado and Southern; the Union Pacific; the Denver and Rio Grande Western; and the Denver and Salt Lake.

ver's principal rivals and the closest large cities. These cities, together with others somewhat more remote, compete with Denver as wholesaling and jobbing centers for the Rocky Mountain area.

The distribution function, begun in a small way to supply the mines of the mountains, expanded with the coming of the railroads and the increased settlement of plains and mountains. Denver developed as an inland "port" where "balanced cargoes" were obtainable and where shipping facilities were always available to all portions of the country. Smaller towns of the Rocky Mountain area afforded as good or better shipping services to some points, but Denver had direct lines to more points than any of the competing towns.

A well-balanced transportation system was important in the development of the collecting and distributing function. First of all keyed to supplying mines of the Rockies with essential materials, the function grew until it came to serve not only the mines, but other industries of the plains and mountains, the irrigation and dry farming belts, the livestock producing areas, and the local market afforded by the growth of Denver itself.

Today Denver is a major inland distribution point, its 835 wholesale establishments¹ supplying its trade territory with an array of general merchandise and specialized products.

Manufacturing center.--By far the greater portion of Denver's factories are keyed to local or, at best, regional distribution. Manufacturing got its start at a time when transportation facilities were poorly developed, when time consumed in shipping was great, and when the expense involved was very high. At its inception manufacturing in Denver was of a pioneer self-sufficiency

¹Census of American Business: 1935, Vol. III, Wholesale Distribution, Cities and Counties (U. S. Dept. of Com.; Washington: Government Printing Office, Feb., 1937), p. 20.

type. Industrial activity centered around the processing of local products for local consumption and included such industries as slaughtering of animals for meat, grinding of flour for bread, tanning of leather, and manufacturing of harness. Fabrication of mining machinery from imported materials was also important. These industrial activities constituted the basic and primary manufactures of the embryo Denver. The market, although large in area, was, and still remains, small in population. The manufacturing which developed was of a diversified and small-scale type.

Small scale of operations and great diversification still characterize Denver's manufacturing. No single industry, with the possible exception of meat packing, dominates the economic life of Denver. Even the packing plants employ only about a sixteenth of the total employed in manufacturing industries. The diversified character of Denver's manufacturing industries will be discussed more fully in connection with the chapter on manufacturing (Chapter IV). Suffice it to say here that it is characteristic.

The bulk of the output of Denver's factories is sold in local and regional markets. Even the packing plants dispose of 75 per cent of their products in Colorado, Wyoming, and New Mexico. Some of Denver's manufactured goods do, however, enter inter-regional trade. Her mining machinery, for example, reaches world markets. Certain other specialized products, such as sugar mill equipment, enter world trade also. For the most part, though, these movements are the exception, and it is primarily in the specialized lines of manufacturing that inter-regional movement of commodities takes place.

Tourist and health resort.--The city's function as a tourist and health resort is very important. Denver is the principal gateway to a vast mountain resort area. The city itself is high

enough and dry enough to have a delightful summer climate.

When tourist travel was thought of in terms of railroad travel rather than in terms of the motor car, Denver, as a terminal point on the rail lines, was well located to draw tourist traffic from all directions. The city was especially accessible from the east and southeast, from which section most of the tourists came. Denver early developed facilities for taking care of and amusing the tourists. Having once gained a reputation, and having means for taking care of tourists, it has been able to hold its place as the principal resort city of the Colorado area. Doubtless there are many other places in Colorado with just as fine scenery, with as invigorating a climate, and perhaps, since the advent of the motor car, just as accessible as is Denver. In general, though, these other areas are not as well prepared to handle the tourist business; neither are they as well known nor do they have the reputation which Denver has built up over a long period in the business. Denver, through a well developed highway and rail system, offers easy and ready access to most of the important points of interest in the Colorado area. Its function as a gateway city of the Rocky Mountain playground exacts a toll from the tourists estimated at upwards of ten million dollars annually. With the motorizing and "trailerizing" of American tourist travel, however, the American tourist is becoming very fickle in his tastes. Denver will need to guard zealously her methods of handling the tourists, if she wishes to maintain her present leadership.

Denver's health resort business is related to the city's favorable climate for the treatment of tuberculosis. The dry clean air has long been considered as possessing curative qualities for this dread disease. The importance of the industry to Denver's growth and development is indicated by the large number of sanitarium

devoted to the treatment of the disease and by the large number of people who come to Denver seeking a cure.

"Capital city."--Denver's function as a "capital city" has added materially to the growth and importance of the city. It is the capital of Colorado and the seat of the city and county government. It is also a very important branch seat of the federal government. Nowhere, outside of Washington, D. C., are there as many federal offices as in Denver. Ten departments of the federal government are represented by some fifty offices which give employment to 1,700 employees. It is one of the leading insurance agency headquarters in the country and a financial and banking center of importance. No place within 500 miles of Denver has comparable hospital facilities. Its educational institutions draw students from a wide area. It is one of the few places in the western interior which still supports, to some extent, the legitimate theater. Denver is the administrative headquarters of the beet sugar and mining industries and for many railroads serving the city. It is a convention city of national repute.

Denver, in these and many other ways, is a cultural, financial, political, and administrative center of great significance. The fact that Denver is the only "capital city" within a radius of some 500 miles doubtless adds to the city's prestige.

General Pattern of Occupancy

Denver's political boundary encloses an irregularly shaped area. The original Congressional Grant from which the city grew was a rectangle of 1.5 square miles (Fig. 1). Later additions have resulted in the present irregular outline which encloses an area of 58.75 square miles (Fig. 1). The present shape is roughly comparable to a squat fat T, the northern two-thirds of the city forming a thick crossbar and the southern third a short base

(Fig. 1).

The built up portion of the city's area conforms, in its major outlines, to the political boundaries (Fig. 2). Closer observation, though, discloses a radial quality to the pattern with blocks of settlement leading out from the center toward the north-west, west, south, southeast, east, and northeast. Lands not used for urban purposes occur between and beyond these blocks of built up territory, forming a distinctive part of the land use pattern.

A major break in the pattern occurs where the north flowing South Platte River and parts of its flood plain divide the city into two unequal parts (Fig. 2). The part of the city west of the river is much smaller than that east of the river. A minor break in the pattern also occurs where Cherry Creek, a tributary of the South Platte River, cuts across the southeastern quadrant of the city (Fig. 2).

Natural water bodies, aside from Cherry Creek and the South Platte River, are largely absent from the pattern. Artificial lakes are quite numerous. All of them are located in park areas.

In most parts of the city, the land use pattern is characterized by an open quality. Denver is predominantly a city of small, detached, individual homes of brick, stone, or stucco.¹ Lawns, trees, parking, wide center-parked boulevards, and parks all emphasize this quality of the pattern. The trees of the city are an especially noticeable feature in the landscape, the tree-lined streets forming a striking contrast with the surrounding, semi-arid plains. In the central shopping district and immediately adjacent areas (Fig. 2), the pattern is more compact and land

¹Stringent fire laws forbid frame construction in most parts of the city.

utilization much more intensive. South of the junction of Broadway and Colfax is a forty-acre park-like tract occupied by the Civic Center¹ and capitol building, an area which is, both by the nature of the functions it performs and by its location, a central focal point in the city pattern.

Site pattern.--Denver lies in the upper part of the South Platte River basin at an elevation of about one mile above sea level (Fig. 3). The city is bisected by the north flowing river. West of the river the city attains an elevation of 300 feet above the lowest portion of the river's flood plain; eastward the maximum elevation reached is 260 feet above the river.

East of the river the land rises gradually from the flood plain in a long gentle slope. Three broad spurs of slightly higher ground are distinguishable, giving an undulating quality to the terrain. The most important of these spurs is the one which runs southeastward from the center of the city, just north of Cherry Creek. This spur is the famed Capitol Hill of Denver (Fig. 3). Another of these spurs, somewhat less pronounced, is distinguishable south of Cherry Creek. Still another is discernible in the northeastern portion of the city (Fig. 3).

Although the spurs of higher land east of the river are not particularly pronounced, they have been significant in their influence on land utilization. As the city expanded away from its original center, new settlement followed higher ground. Elevations were first occupied and then intervening lowlands were filled up. This tendency is still in evidence in new sections developing in southeast Denver.

West of the river, topography is somewhat more rugged.

¹In the Civic Center group are included: the Municipal Building, the Denver Public Library, an amphitheater and monuments in a setting of landscaped grounds.

The land rises very abruptly from the flood plain in a well defined bluff. Two major highland districts, one toward the northwest and another toward the southwest are distinguishable. These highland districts are separated by an east-west depression which is occupied by an intermittent stream (Fig. 3).

Denver's site, then, can be thought of as a broad, somewhat eccentric, U-shaped block tipped slightly toward the northeast. The South Platte River flows in the lowest portion of the U and produces a major break in the city's pattern. Cherry Creek, providing a minor break, cuts across the block from the southeast and joins the South Platte near the center of the city. The eastern part of the block rises gradually from the river in a gently rolling plain, while the western part rises more abruptly and to higher elevations.

Street pattern.--There are three divisions of the street pattern in Denver. The greater portion of the city has a rectangular grid pattern with streets oriented north-south, east-west. These streets were laid out in conformity with government land surveys. Near the central shopping district, both east and west of Cherry Creek, the streets are not in conformity with this pattern. Neither are the streets on either side of Cherry Creek in conformity with each other (Fig. 4). The origin of the orientation of these streets will be discussed in connection with the evolution of the city pattern.

Superimposed upon the major plan of north-south, east-west streets, there is a partially developed system of diagonal arterial highways. The principal diagonal streets lead from the southeast toward the central shopping district (Fig. 4). There are not many diagonal arterial streets in the city, but there have been proposals for their extension (Fig. 4). They are exceedingly

practicable for intra-city traffic movement, since they not only afford ready access from the built up portions of the city to the central shopping district, but also provide short cross-town routes (Figs. 4 and 2).

Although diagonal streets are of considerable importance in the street pattern, they are not the principal arterial highways. North-south, east-west streets carry the bulk of the traffic. Except for streets in the central shopping district, Broadway carries more traffic than any other street in Denver. Supplementing Broadway in caring for north-south bound traffic are six other major arterial highways, two west and four east of the river (Fig. 5). The principal east-west arterial street is Colfax Avenue (Fig. 5). In addition to Colfax, there are four principal east-west streets. All except one of these are south of Colfax (Fig. 5). This fact is probably to be accounted for by the generally unoccupied character of the northeastern portion of the city, and by the break in the traffic-flow pattern produced by City Park (compare Figs. 2, 4, and 5).

Evolution of the city pattern.--The beginning of Denver was at the junction of Cherry Creek and the South Platte River (Fig. 3). Gold in the area attracted settlers and they built their first lodgings on the wedge of land between the creek and the river. This land was obtained from fur traders with Arapahoe wives. The town which developed was named Auraria, after the home town of the founders (Fig. 1). A street plan with Cherry Creek as the base was laid out.¹ It was composed of four main avenues and five cross streets at right angles.²

¹Publications Committee of the Denver Planning Commission, Denver Planning Primer, An Abridged Report Dealing with Planning and Zoning in Denver (Denver: Denver Planning Commission, 1934), pp. 5-6.

²The four main avenues were: San Luis, Ferry, Cherry, and

The next stage in the evolution of the city pattern was the founding of the little town of Denver City across Cherry Creek to the northeast of Auraria¹ (Fig. 1). The founders of Denver City did not use Cherry Creek as a base for their street pattern. Instead they made use of an old road used by freighting outfits coming into the area from Missouri or New Mexico with supplies for these towns and for the mining camps of the mountains. This road came down along Cherry Creek, crossed the hill now occupied by the capitol, and followed on down what is now Fifteenth Street. Since the old road did not run exactly parallel to Cherry Creek, the street patterns of Auraria and Denver City, although similar, were not in exact conformity.²

On May 23, 1864 the present City of Denver was organized. The residents of the area were given a Congressional Grant of 960 acres. The boundaries of this grant were West Colfax Avenue, Broadway, Twenty-sixth Street, and Zuni³ (Fig. 1).

In the period immediately following the grant, small additions to the north, east, and south were made. In 1874 the first major extension of the city was consummated. This addition, to the north and east of the original grant, indicated the general growth of the city toward the northeast (Fig. 1). Ten more extensions to the city followed rapidly through the eighties, nineties, and into the beginning of the nineteen hundreds. The last extension of the city, which brought it to its present shape with an area of 58.75 square miles, took place in December, 1902 (Fig. 1). The rapid expansion of the city's area closely paralleled the rapid

Front (later changed to Tenth, Eleventh, Twelfth, and Thirteenth). The cross streets were designated by numbers: First, Second, Third, Fourth, and Fifth (later to become Wewatta, Wyncoop, Wazee, Walnut, and Larimer).

¹Ibid., pp. 6-7.

²Ibid.

³Ibid., pp. 8-9.

growth in population,¹ the building of railroads, and the development of the commercial function in the city. Although Denver was founded by gold seekers who, for the most part, had no intention of permanent residence in the area, the absence of the mineral in large amounts and its later discovery in the mountains brought about a reorganization of the city's economic life. The supplying of the mining camps with food, clothing, building material, and mining supplies supplanted the earlier interest in mining. The old mining camp gave way to the new order--a city whose chief function was to act as a collecting and distributing point. The railroads, passing through an active period of construction throughout the seventies and eighties, aided materially in the growth of population.

Residential pattern.--The most striking characteristic of the residential pattern of Denver is that it is composed of two major parts, one part east and one part west of the South Platte River (Fig. 6). These two major divisions, however, break down into smaller sections.

West of the river at least two significant sub-areas of residential settlement are distinguishable, one to the north and another to the south. Midway between these two built up portions, in the vicinity of Sloan and Coopers Lakes, there is a break in the continuity of the pattern. The district to the north is larger, more compact, and more intensively utilized. In the south settlement is more dispersed and the pattern becomes more linear in character (Fig. 6).

¹An unofficial census taken of the city in 1860 gives the population as 4,749. The first official census was taken in 1870. The population at that time was 4,759. In the decades following the population was: 1880, 35,629; 1890, 106,713; 1900, 133,859; 1910, 213,381; 1920, 256,491; 1930, 287,861. While each census shows a considerable increase over the preceding one, it should be noted that the rate of increase declines in a marked fashion.

East of the river the residential pattern is composed of a compact block of settlement around the central shopping district and the heterogeneous belt¹ with radial lines of settlement to the northeast, east, southeast, and south. For the most part areas away from the center are newer sections and indicate the general trend of residential development. In almost all cases these lines of expansion follow the higher ground while the intervening unoccupied areas are confined to lower elevations (Fig. 6).

Railroad pattern.--Denver's railroad pattern is composed of the rights of way of seven railroads, passenger and freight terminals, sidings and spurs, interchange track and yards, and four railway repair shops (Fig. 7). No belt line railroad serves Denver and there is no general freight classification yard, although a joint interchange track is used in the transfer of cars between the various roads.

The railroad rights of way conform rather closely to the course of the South Platte River. All lines, except the Kansas division of the Union Pacific and the eastern branch of the Colorado and Southern, enter the city either from the north or the south. The Union Pacific (Kansas division) enters from the east near the northern boundary; the eastern branch of the Colorado and Southern cuts across the southern end of the city.

All freight and passenger terminals are in a central terminal district located on the northwestern side of the heterogeneous belt and central shopping district, and near the center of the urban pattern. All passenger trains serving Denver, except

¹This belt is a district immediately adjacent to and almost completely encircling the central shopping district. From the standpoint of functional forms which are present, it is exceedingly heterogeneous. Although dominantly commercial, within its borders are to be found nearly every major type of urban land utilization. It will be referred to in this study as the heterogeneous belt and will be treated in the section dealing with commercial land utilization.

the Denver and Salt Lake utilize the Denver Union Station which occupies a site near the center on the southeastern margin of the central terminal district. The Denver and Salt Lake depot is in the same general area, a little to the southwest of the Union Station.

The interchange track and the yards of the various railroads are located in or adjacent to the central terminal district. The track is in the heart of the district while the yards are localized, in general, on the northeastern and southwestern periphery.

The railway repair shops lie in a belt roughly parallel to the river, three on the east side and one on the west. Two of the shops are located in the central and two in the northern part of the railroad pattern. Tracks for classification and storage are associated with each of the shops. A fifth shop, that of the Denver and Salt Lake railroad, lies just outside the city limits to the north.

Manufactural pattern.--Denver's manufacturing pattern conforms closely to the railroad pattern (Fig. 7). All the heavier types of industries and those utilizing rail transportation are scattered in a linear belt from the northern to the southern margins of the city. Since the river turns toward the northeast about the center of the city and since the rail lines closely parallel the channel of the river, the industrial pattern exhibits the same tendency.

Smaller manufacturing units, less dependent on rail transportation for their raw materials or for the disposal of their manufactured products, are scattered throughout the central shopping district, the heterogeneous belt, and adjacent areas. There is a noticeable concentration of these plants on the east side of the river. They, for the most part, are those engaged in produc-

tion for local markets and include such factories as bakeries, print shops, metal fabricating plants, and units devoted to the preparation of various food products.

Commercial pattern.--Denver's commercial pattern is definitely star shaped (Fig. 8). The central shopping district, together with the heterogeneous belt, forms the heart of the star. The major outlying commercial districts, following the principal arterial streets, make the points. There are five radial lines of expansion. South of the central shopping district the commercial pattern follows the cardinal points of the compass to the west, south, and east. North of the central shopping district the main lines are toward the northwest and northeast.

The commercial shopping district is located in a position slightly west of the mathematical center of the political city, but near the center of the built up or utilized portion. The central shopping district forms a trapezoidal figure, the longer axis of which has a northwest, southeast trend. Its maximum length is about twelve blocks. The shorter axis, at right angles to the longer, is from one to seven blocks in length. The long axes of the blocks, though, run in the same direction as the short axis of the district. Accordingly the central shopping district is almost square, except in its eastern portion where it has been truncated by Broadway (Fig. 8).

At present the principal shopping street is Sixteenth Street (a northwest-southeast street). This orientation has not always been the case. The central shopping district first became well defined northeast of its present location, along Larimer Street. A reorientation of the commercial pattern followed the building of the famed Tabor Opera House on Sixteenth and the donation by H. C. Brown of a site for the capitol building on Capitol

Hill.

Convenient divisions of the city.--In order to facilitate reference to various parts of the city, Denver is popularly divided into various major areas. The central shopping district and the heterogeneous belt have already been mentioned. In addition to these terms, other parts of the city have special names (Fig. 9), names which, in some cases, are a survival from a time when these areas were not included within the corporate limits of Denver (as, for example, Globeville, Elyria, and several others). Others of the names are locational; many of these are also of early origin and seem rather incongruous at the present time. North Denver, for example, is really in the northwest part of the city; East Denver is almost in the north-central portion. When these areas got their names, though, before Denver attained its present size and shape, the names were accurate locational terms. Since they are used at the present time in Denver, although they are not very accurate, they will be used in this study. A further division of the city is made here into zones: an inner, an intermediate, and an outer. These zones are delimited on the basis of time necessary to walk to the nearest carline and, by street car, reach the center of the city (Sixteenth and Champa). Any place within the inner zone is within ten minutes commuting time, the intermediate zone from ten to twenty minutes, and the outer zone more than twenty minutes from the center of the city (Fig. 9).

Land Utilization

Although there are many different kinds of land use in Denver, the various uses are grouped into five major categories. These five major categories include land utilized for the following purposes: (1) residential, (2) public, (3) transportation and industrial, (4) commercial, and (5) non-urban. The combined pat-

tern of these five types of land use make up the land utilization pattern of Denver's corporate area and form the bases for the next five chapters of this study.

CHAPTER II.--LAND UTILIZED FOR RESIDENTIAL PURPOSES

1. Residential lands in Denver occupy approximately 36 per cent of the city's total area. The pattern of residential land is not a continuous one. It is made up of two distinct parts, one east and one west of the South Platte River (Fig. 6).

2. West of the river there are several communities of settlement: a solid block of built up territory in the northwest, a small community to the northeast, a narrow ribbon of settlement in the west-central portion of the area, a block of settlement covering approximately a square mile in the so-called Barnum District, and a small outlier of residential land just to the east of Barnum.

3. Residential lands east of the river form a crescent about the central shopping district and the heterogeneous belt. From this central crescent radial extensions lead off to the northeast, east, southeast, and south. The largest extension is to the south and the smallest to the northeast.

4. Low grade house areas occur in seven sections of the city: (1) along the South Platte River, (2) in the northern section of the city, (3) northwest of the central shopping district, (4) throughout the Barnum district, (5) north of Cherry Creek and east of the Denver Country Club, (6) west of Broadway and south of Cherry Creek, and (7) in the peripheral areas of the southern portion of the city.

5. All low grade house areas are characterized by poor upkeep of buildings and grounds, and by cheap and flimsy construction or by age and dilapidation. The low quality is due in large

measure to the unattractive character of adjacent land utilization (such as factories and railroads), the type of people inhabiting a district, zoning of sections for industrial and commercial purposes, age, danger of floods, cheap construction permitted by a liberal building policy on the part of the city during the World War, and remoteness from the business district.

6. Intensity of utilization of units in the low grade districts is subject to wide variation. It is greatest in the negro district, probably averaging 8 to 10 persons per unit, and least in the Barnum district where the average per unit is between 4 and 5.

7. Changes in the low grade house areas of three types are in evidence: (1) a decline in quality of what are now medium grade houses to a low grade type, due primarily to the possibility of undesirable occupancy, (2) a change in type of land utilization, residential areas becoming commercial or industrial, and (3) a removal of low grade houses and building of very high grade types in a section (near the Denver Country Club) once menaced by floods and near which there is the best residential area of Denver.

8. Medium grade small houses occupy six distinct sections of the city: (1) North Denver, (2) along Colfax Avenue west of the river, (3) north of City Park, (4) east of City Park (Park Hill), (5) east and southeast of Cheesman Park, and (6) around Washington Park.

9. Medium grade small house districts are characterized by upkeep of buildings and grounds ranging from just above low grade to almost high grade. The medium grade quality of the houses west of the river is related in large measure to the fault line which the river and its associated industrial, railroad, and commercial activities make in the residential pattern. The neces-

sity of crossing this section in going from the business district to areas west of the river has retarded high grade residential development in that section. East of the river medium grade small houses are largely a result of real estate developments which brought about the building of medium grade housing units.

10. Intensity of utilization of housing units in the medium grade small houses seems to vary from 3 persons per unit in the new sections to 6 or 8 in the older sections.

11. A decline in quality of the medium grade section north of City Park seems likely, due to the presence of a negro population on the western margin of this section. Change is possible, but not likely, in the area south of City and east of Cheesman Parks where multiple dwellings are encroaching on the western margin of this medium grade district. Expansion of medium grade areas seems likely in those sections of the city where land is available, particularly between North Denver and Colfax Avenue, and in the section east of Colorado Boulevard and north of Sixth Avenue.

12. The medium grade mixed type, large and small homes, and multiple dwellings is an area of mixed residential forms. This type includes areas in which small and large houses and apartment buildings occur in great confusion. This type of housing is confined primarily to the Capitol Hill district. The medium grade mixed type is a result of several conditions. Many very large houses were built in the Capitol Hill district when Capitol Hill was the best residential section of the city. These extremely large homes have gone out of style. Commercial activity is encroaching on the western fringe. Family incomes, in many cases, have declined with the exhaustion of the mineral wealth of the mountains. The auto has made it possible to live a greater distance from the commercial center of the city. Zoning laws have

permitted remodeling of large houses into multiple dwellings and the building of apartment houses. High taxes and expensive upkeep are contributing factors.

13. The residential land of the medium grade mixed type is intensively utilized. Living units are small, but numerous.

14. The medium grade mixed type district is one in which a change from large single dwellings to the multiple type dwelling is in progress.

15. High grade mixed type residential areas occur in two sections of the city: (1) near the Denver Country Club and eastward and (2) east of City Park.

16. High grade mixed type areas are characterized by a mixture of large and small houses with excellent upkeep of buildings and grounds. The high grade mixed type areas are a result of favorable sites, of real estate promotion, of the character of adjacent land use (particularly the Denver Country Club, the center of Denver's social life) and of favorable zoning restrictions.

17. Land in the high grade mixed type areas is not intensively utilized.

18. Decline in the quality of the high grade areas seems unlikely. The most likely change is an expansion of the area occupied by this type of housing unit, particularly in the Mountain View Park and Park Hill sections.

19. High grade large houses are confined to the area of the Denver Country Club, except for the estate of Senator Phipps located southeast of the Denver Polo Club.

20. High grade large houses are characterized by excellent upkeep and spacious grounds. The high grade large houses are largely a result of the same conditions that brought about the development of the high grade mixed type.

21. Intensity of land utilization is very low in the high grade house areas, although intensity of utilization of each unit is rather high. This is due, primarily, to the fact that each building houses not only the owner and his family, but a corps of servants as well.

22. A change of any sort in the high grade large house areas seems unlikely, except perhaps an increase in the amount of land devoted to this type of housing unit.

CHAPTER III.--LANDS UTILIZED FOR PUBLIC PURPOSES

1. Lands utilized for public purposes occupy approximately 25 per cent of the city's total area. They are devoted to a variety of functions and include: (1) institutional lands, (2) recreational lands, and (3) city, state, and federal lands operated for public purposes (Fig. 10).

2. On the basis of focal function with respect to area, these lands are of two kinds: (1) those devoted to internal focal functions, and (2) those devoted to functions of extra-local significance.

3. Lands devoted to internal functions include: (1) church lands, (2) school lands (except schools of higher learning), (3) lands occupied by institutions such as clubs, lodges, and associations, (4) lands used for hospitals (except sanitariums), (5) recreational lands, and (6) city, state, and federal lands of internal focal importance.

4. More parcels of land are devoted to churches than to any other type of institutional land utilization. There are 281 churches in the city. The pattern of distribution of the churches has two distinct characteristics. Near the central shopping district the pattern has a circular aspect, broken by the river and other urban land forms in that area. Away from this center the

pattern becomes radial, following the principal lines of city development. The localization of churches is related to: (1) the historical development of the city, as evidenced by the concentration of religious forms near the business center, and in the older residential sections, (2) the residential pattern, as evidenced by the greater number of churches in the inner and intermediate zones of the city than in the outer zone, and by the tendency for church forms to follow lines of population, and (3) the scattered character of the various denominational residence patterns.

5. School lands in Denver are occupied by 62 elementary schools, 10 junior, and 5 senior high schools, an Opportunity School, and an evening vocational school. Two characteristics in the pattern of school lands are distinguishable. The older schools are located primarily with respect to population distribution. The newer schools are located, whenever possible, at a definite radial distance from each other and on attractive sites (beautiful surroundings, ample space for playground facilities, and on traffic-free streets).

6. Clubs, lodges, and associations tend to be concentrated in the central shopping district. Such location, since these institutions are focal for the entire city, is more accessible to more people than any other which might be chosen. The fact that this type of land use requires, in general, relatively small parcels of land makes location in the central shopping district (a section characterized by high land values) economically feasible.

7. Most of the hospitals are located within or near the outer margin of the central zone of the city. Lower land values than in the central business district, greater freedom from noise, and near-central location in the city pattern seem to be the principal locating factors for this type of land use.

8. Recreational lands include 44 parks, an amusement park, 64 school playgrounds (included in the school lands), 63 public tennis courts, 4 community houses, 5 golf courses, a polo field, and a race track. Recreational lands for the most part are located in the intermediate and outer zones of the city. Localization here is largely a matter of available space and, in the case of the parks, the result of inattention to recreational facilities until the inner zone of the city was occupied by other types of urban uses.

9. City and County lands utilized for public purposes which are of local focal importance include: (1) lands used for streets, (2) lands utilized for fire and police service, (3) lands used for administrative purposes, and (4) lands used for other public purposes.

10. There are 1,030 miles of streets in Denver, varying in width from a few feet to well over a hundred. Probably about 16 per cent of the city's area is occupied by streets.

11. The police station is located on the west-central margin of the central shopping district and on one of the principal arterial streets. The police station is focal for the entire city and its location is near-central in the urban pattern.

12. Fire stations tend to be concentrated in the vicinity of the central shopping district and also to be distributed in a radial fashion in accord with the principal lines of urban expansion. Fire stations tend to be focal for the immediate area in which they are located. On occasion, however, they become focal for the entire city. Location just outside the heart of the business district gives access to the immediate territory and at the same time to the entire city without the necessity of passing through the congested streets of the central business district.

13. Lands utilized for administrative purposes of local focal importance are those belonging to the City and County of Denver, which political areas are co-extensive. Nearly all these administrative lands are in one section, the Civic Center located on the southern periphery of the central shopping district. Several factors brought about the localization of the administrative function at this place. Lack of room in the central shopping district, except on land of high value, retarded expansion on or near the site on which the administrative function was first located. This fact aided in the development of Civic Center on land of lower value, land that previously had been occupied by a rather low grade residential type of land utilization. The site is central in the urban pattern, being at the junction of Colfax and Broadway, two of Denver's busiest streets. The park-like character of the grounds affords open space near the congested center of the city. In addition, the Civic Center is adjacent to the state capitol.

14. Other city lands utilized for public purposes include those used for cemeteries, for the water supply system, for sewage disposal, for dumps, and for stables, garages, and warehouses used in the operation of the city.

15. A very small portion of the city is devoted to cemeteries. Most of the important burial grounds are located outside Denver. Two small cemeteries, contiguous to each other, are located just east of Cheesman Park. Lack of space in suitable settings within the city and abundant land in attractive locations outside seem to account for the migration of this type of land use to areas beyond the city limits.

16. Lands used for the water supply system include those devoted to reservoirs, pumping and booster stations and mains in various sections of the city. Parts of the city are supplied by

gravity from the Capitol Hill Plant, located east of Cheesman Park in the intermediate zone of the city, and from the Ashland Avenue Reservoir, just outside the city limits to the west. Pumping stations take care of the higher districts. Most of Denver's water comes from the watershed made up of the South Platte River and its tributaries. Additional supplies are being made available through trans-mountain diversion from the Western Slope.

17. No lands in the city are devoted to sewage disposal plants. Sewage is disposed of at the present time by pumping it into the South Platte River.

18. City dumps are located in peripheral sections of the city. The lands used for this purpose are not the same from year to year.

19. Garages, stables, and warehouses belonging to the city are located in the old Auraria district and in the far eastern margin of the city pattern.

20. No state lands are devoted to functions which are primarily of local focal significance.

21. Most of the federal lands are focal points of extra-local significance. One major exception is the post office and its branches. The post office is in the central shopping district, a central location in the territory served. The branches are in outlying portions of the city pattern.

22. A considerable portion of Denver's land is utilized by functions of extra-local importance. This is in part due to the size of Denver and in part to the "capital" position which Denver occupies in its region. Lands in this category include those occupied by: (1) schools of higher learning, (2) sanitarium, (3) eleemosynary and semi-eleemosynary institutions, and (4) state and federal functions of extra-local significance.

23. The institutions of higher learning are, for the most part, located in the peripheral sections of the city where land is available for buildings, grounds, and athletic fields.

24. Sanitaria, of which there are 21 in Denver, are, in general, located in the outer zone of the city. The fact that sanitarium are of regional and national importance and the fact that tuberculosis requires a considerable time for treatment minimizes the importance of central location in the city pattern. Rest and quiet are essential in the treatment of tuberculosis, an additional factor which has tended to locate the sanitarium away from the noise and congestion of the center of the city.

25. The establishment of many eleemosynary and semi-eleemosynary institutions in Denver is closely related to the "capital" character of the city. These institutions are nearly all in the outer zone of the city, particularly in North Denver and in the most southerly margins of the city. Being primarily focal for large tributary areas, there is little advantage to be gained from central location in the city pattern, a potent factor in bringing about their localization on the less intensively utilized lands of the outer zone of the city.

26. State lands utilized for public purposes include those occupied by the capitol building, the state office building, the State Museum, and associated grounds. State lands are all localized in one area, adjacent to the Civic Center and near the center of the urban pattern. The state lands have had a profound influence on the residential pattern (see Chapter II) and on the commercial pattern of the city (see Chapter V).

27. A relatively large amount of land in Denver is occupied by buildings which house federal government functions, particularly those which are focal for areas outside the city. This reflects

the regional importance of Denver as a center of activities of the federal government. Federal lands used for public purposes of extra-local importance include the Custom House, the Federal Reserve Bank, the Mint, and the old Post Office, now used as a general office building by the federal government. The federal buildings are not concentrated in one area as are the city and county, and state buildings. The irregular character of the pattern is largely the result of local real estate agents' persuasion of the federal government to buy particular pieces of ground.

CHAPTER IV.--LANDS UTILIZED FOR TRANSPORTATIONAL AND INDUSTRIAL PURPOSES¹

1. Lands utilized by railroads, airports, and factories occupy 5 per cent of the city's total area (Fig. 7).

2. Lands devoted to railroad purposes include: (1) the railroad rights of way, (2) freight and passenger terminals, (3) sidings and spurs, (4) interchange track and yards, and (5) the railway repair shops.

3. The amount of land devoted to railroads is related to: (1) the unrestricted building of lines in early days, (2) the fact that Denver was off the main lines and that tying the city to them necessitated the construction of several roads, (3) the scattered location of the early mining camps which necessitated a number of different lines to reach them, (4) the growth of population, the increase in territory served, and the development of Denver as an important distribution center and the consequent greater demand for rail facilities.

4. The pattern of the railroad rights of way is linear

¹Although lands devoted to transportation and industrial purposes are used for somewhat different functions, they are so closely inter-related in Denver that they are combined in a single category in this study.

and conforms to the north-south course of the South Platte River. A secondary characteristic of the railroad pattern is a fan-like spread of the lines north of and a narrower spread south of the central portion of the pattern. The pattern is related in part to the low and level land available along the river and in part to the historical development of the railroad lines. The building of a stub line in the early days of Denver to connect the city with the main line of the Union Pacific to the north was doubtless instrumental in helping to establish a north-south alignment of the railroad rights of way.

5. Freight and passenger terminals are localized in a central terminal district located on the northwestern periphery of the central shopping district and heterogeneous belt, and near the center of the urban pattern. Easy accessibility from all parts of the city, and particularly from the shopping district and the heterogeneous belt, seems to be the principal locating factor for all the terminals.

6. Sidings and spurs are concentrated in the heterogeneous belt, adjacent to the central terminal district, and also in the old Auraria section. Concentration here is related to the presence of wholesale establishments and factories of a type utilizing rail facilities. Sidings and spurs are also found in a linear pattern conforming to the rights of way.

7. The interchange track is in the heart of the central terminal district. It functions in the exchange of freight cars from one railroad to another. The railroad yards occupy sites on the periphery of the district. A matter of functional convenience in the transfer of freight from one line to another seems to be the principal locating factor for the yards.

8. The pattern of the railroad shops conforms rather

closely to the linear pattern of the rights of way. The land on which the shops are located is low, poorly drained, subject to flooding, and unsuitable to many types of urban uses. This was advantageous to the shops in that it tended to keep land values low and make it available for a type of land use requiring considerable space.

9. A division in the function of handling freight exists between the railway sidings and the freight depots. The depots, in general, take care of the less than carload shipments and the sidings the full carload lots.

10. The intensity of railroad land utilization is indicated in part by the 45 passenger and the 25 freight trains in and out of Denver daily.

11. Transitions in railroad land utilization seem unlikely, except the possibility of a consolidation of various lines, yards, and terminals.

12. The two Denver airports are located in the northeast portion of the city pattern.

13. The localization of the airports is related to:
(1) available and level land, and (2) accessibility to the central business district.

14. The development of airlines is comparable in many ways with the earlier railroad building. There is no main line serving the city and the existing lines are primarily connecting links, tying Denver with the transcontinental routes.

15. Manufacturing in Denver is of a small-scale, diversified type and is favored by: (1) the isolation of the city's market area from competing industrial regions, (2) the general freight rate structure which allows a slight differential between raw materials and manufactured goods, a differential favorable to the

Denver industrialist, (3) the excellent distribution facilities afforded by Denver's seven railroads, (4) the market created by the railway repair shops, (5) the break-in-bulk function arising in Denver, (6) the presence of certain raw materials, (7) the attractiveness of Denver as a place to live and its function as a health resort, which make available ample supplies of labor, capital, and entrepreneurs, (8) the tourist business, and (9) the specialized demands of a specialized region.

16. The industrial pattern conforms closely to the north-south linear pattern of the railroad lands. Near the center it takes on a nodal quality. A secondary characteristic of the pattern is a concentration in and around the central shopping district and heterogeneous belt, a linear arrangement along certain of the arterial streets, and a random scattering in other sections of the city.

17. The factories in the major industrial belt are, in general, focal points for areas outside the city. Their importance is regional and inter-regional. The localization of factories within this belt is related to: (1) the historical development of the city, (2) the availability of water power from the now extinct Mullin Ditch, (3) the necessity of accessibility to rail service for receiving raw materials and shipping finished products, (4) the availability of land unattractive to many types of urban use, (5) the objectionable character of certain types of industries, (6) the inter-relation and inter-dependence of certain industries such as packing plants, animal by-products companies, and stock-yards, and (7) the desirability of access to the narrow gauge line for certain industries.

18. Outside the major industrial belt the factories are focal points for small areas--usually the city or parts of the

city. The localization of factories outside the major industrial belt is related primarily to the market served. In general these factories are located in the center or on the periphery of the territory in which they distribute their products.

19. Marked changes in the industrial pattern seem unlikely, although changes in the intensity with which the industrial lands are used or in the kind of manufacturing carried on may occur. Evidence of such changes in the past is observable in the present landscape.

20. The growth of a new industrial section outside the city to the north is evident and will probably increase in importance.

21. There is a marked seasonal trend in many industries in Denver, particularly those related to the tourist business.

CHAPTER V.--COMMERCIAL LAND UTILIZATION

1. Lands utilized for commercial purposes occupy approximately 6 per cent of the city's total area (Fig. 8).

2. Commercial activity in Denver got its start primarily as a result of: (1) the isolation of the city's market area, (2) Denver's central location with respect to the mining camps of the Rockies, and (3) the break-in-bulk function performed. The small size of the mining camps, their diversified demands, the frontier character of Denver, and general lack of capital for large scale concerns all aided in the development of a small scale diversified type of establishment. The coming of the railroads did little to alter fundamentally the character of Denver's trade area. The market remained: (1) isolated, (2) small in population, and (3) diversified in its demands. The break-in-bulk function performed by the embryonic city was perpetuated by the terminal character of the seven railroads which came to serve it and by

the freight rate structure.

3. The present dominant commercial position of Denver results from: (1) the city's central location in its region, (2) the superior character of its railroad facilities, (3) the attractiveness of Denver as a place to live which makes available ample supplies of labor, capital, and entrepreneurs, and (4) the tourist business which annually adds millions of dollars to the spendable income of Denver's trade area.

4. On the basis of special functions performed, territory served, and character of forms, the commercial lands of Denver are of three kinds: (1) the central shopping district, (2) the heterogeneous belt, and (3) outlying commercial lands. The outlying commercial lands are primarily of two types: (1) those focal for a local trade area, and (2) those focal for the city or for territory beyond the city.

5. The central shopping district, the commercial core of the city, occupies approximately 65 square blocks north of Civic Center and, for the most part, west of Broadway. The trapezoid-like shape of the district results primarily from: (1) the interrelations of the various forms of the area with the residential pattern of the city, both past and present, and with other land use patterns, (2) the gravitational pull exerted on the district by the building of the Brown Palace Hotel, the Tabor Opera House, and the donation of the capitol site by H. C. Brown, (3) the fault-line character of Broadway on the east and of Civic Center on the south, (4) accessibility to North Denver which Fourteenth Street affords, and (5) the encroachment of other types of urban forms.

6. The principal shopping street is Sixteenth. There are 1,432 space units¹ on the portion of this street included in

¹A space unit is defined as a vertical square fifteen feet wide and one story high.

the central shopping district. Of these 1,432 units, 39 per cent are used for sales, 2 per cent for sales storage, 6 per cent for service, 46 per cent for offices, 3 per cent for public use, 1 per cent for residential purposes, and 3 per cent are vacant. A concentration of the sales function near the northwestern end of the street is noted. This is probably related to the fact that the earlier sales units were located in this part of the street and inertia of established form tends to hold them there. Approximately the same number of sales units is found on both the northeast and the southwest sides of the street. The stores on the southwest, though, cater primarily to women while those on the northeast side are mostly men's stores.

7. Shopping-goods and specialty-goods stores are the principal type found on Sixteenth. The localization of them in the same area is primarily a matter of functional convenience. Both types are focal for the entire city or for areas beyond the city. Central location for one is central location for the other.

8. Sales storage space units are relatively unimportant. In fact, the small number present does not seem to be an adequate basis for any generalizations concerning their distribution.

9. The small number of service space units along Sixteenth is indicative of the other-functional character of the street.

10. The absence of light manufacturing space units along the street is also indicative of its other-functional character.

11. Although all office space units are grouped together in one category, a differentiation in the functions they house is noted. Both types, though, are focal for the entire city, or for areas beyond the city. The professional offices, because they are less closely associated with the activities of the central shopping district, tend to be located on the periphery. The administrative,

financial, commercial, insurance, and similar types, because their activities are likely to be more closely integrated with the functions of the central shopping district, tend to seek locations near the center.

12. The small number of space units devoted to public use indicates the small amount of land devoted to this function along Sixteenth.

13. That residences, which are often focal for large areas, but not intensively so, tend to be pushed out of the central shopping district is indicated by the small amount of land devoted to them.

14. Certain of the northeast-southwest streets studied in detail indicate a somewhat different distribution as to classes of space units. On the cross streets 27.5 per cent of the units are utilized for sales, 0.7 per cent for sales storage, 27.0 per cent for service, 2.6 per cent for light manufacturing, 25.1 per cent for offices, 7.7 per cent for public use, 6.7 per cent for residential purposes, and 2.7 per cent are vacant. These percentages indicate a wider dispersion in types of use to which the cross streets are put than is true along Sixteenth. Sales and office space are less important. Service units are four and one-half times as important; manufacturing, absent along Sixteenth, is fairly important; public use is three times as important; and residential units nearly seven times.

15. The importance of the service function is particularly significant. In this category are included those establishments which dispense services rather than goods. Service units are seen to be of several different types, especially when viewed from the standpoint of the factors which bring about their localization.

16. The most important part of the service units is made

up of hotels. This is primarily due to the importance of the tourist business in Denver and the consequent necessity of housing a large seasonal trade. Most of the hotels, especially the first-rate ones, are localized on the southern periphery of the central shopping district. The localization of the hotels seems to be the result of: (1) the fact that the Brown Palace, the best hotel in Denver, was located in this portion of the district and tended to attract other similar forms to the vicinity, (2) the fact that this portion of the central shopping district is near the junction of two of Denver's principal arterial streets (Broadway and Colfax) and thus is conveniently located to attract automobile tourists, (3) nearness to many of the public use forms, especially the capitol, helps the hotels to attract the trade of persons having official business in the city, and (4) the more attractive surroundings of this area as compared with the section adjacent to the railroads where the first hotels of the city were built.

17. Service units of the amusement type, particularly movies, tend to be localized in two distinct areas. The newer units, following the trend of the hotel-type of service unit, occupy peripheral locations. The older units, doubtless located when other locative forces were in operation, are more centrally located. The fact that the older units are second-run, second-rate, and in need of repair indicates that these houses are not well located and that transition is taking place.

18. Other service units of the central shopping district are, in most cases, focal for portions of the central district. Restaurants, for example, are primarily focal for the stores and offices and usually occupy "just around the corner" locations from the forms which they serve.

19. Larimer, the northwestern boundary of the central

shopping district, in the display of space units, gives evidence of transition to other types of land use. This change is evidenced by: (1) the decrease in importance of office space units, (2) the increase of residential space units, (3) the half-sales, half-service character of the sales units, and (4) the "flop-house" character of the hotel-type of service unit.

20. The heterogeneous belt surrounds the central shopping district. It is composed of three parts: a northeastern, a central, and a southwestern section. Although exceedingly complex from the standpoint of functional forms present, the dominant function of the heterogeneous belt is commercial.

21. The northeastern section is a zone of transition between the commercial activities of the business district and other types of urban land use to the north and east. Commercial land use in this portion of the heterogeneous belt is characterized by small convenience and shopping goods stores handling inexpensive merchandise, and commercial units requiring considerable area--coal, lumber, supply, and junk yards. Small factories, warehouses, and residential forms also occupy a considerable portion of the area.

22. The central section is a wholesale, retail, service, manufactural, residential area with wholesaling the outstanding function. Most of the wholesale mercantile, poultry, fruit, beverage, drug, and miscellaneous supply houses are located in this section. The localization of the wholesale function is related to: (1) accessibility to the central shopping district, (2) availability of rail transportation and ease of putting sidings into this area, (3) available land unsuited, because of the unattractive character of adjacent land utilization, for many types of use, (4) a location which obviates the necessity of moving com-

modities through traffic congested streets between railroads and warehouses.

23. The southwestern portion of the heterogeneous belt, like the northeastern, is a transitional zone. The section is composed of two parts: (1) sales-service type of commercial forms occupying the area between Fourteenth Street and Cherry Creek, and (2) commercial forms requiring large space (pipe, junk, coal, lumber, and wood yards) west of the creek. Warehouses, factories, and residences occur in rather large numbers. The complexity of the southwestern section is due primarily to the historical development of the city. Denver began in this section and many of the forms, due to the inertia of established activity, have remained and add to the present-day complexity of the pattern.

24. The outlying commercial lands, from the standpoint of territory served, are, in general, of two types: (1) those focal for a small trade area (the local retail shopping district), and (2) those focal for the city or a larger territory.

25. In fifteen local shopping centers studied in detail there are 44 different types of sales and service functions present. Fourteen of these functions account each for 2 per cent or more of the total. These 14 and the percentage of each include: grocery stores 9.2; eating places 8.6; barber shops and beauty parlors 7.2; garages and parking lots 6.4; hardware stores 5.8; drug stores 5.4; filling stations 5.4; light manufacturing 5.3; offices 4.0; cleaning and dyeing establishments 3.6; plumbing and heating supplies and services 3.1; ice cream and candy stores 3.0; auto supplies 2.8; and dry goods and notions 2.4.

26. Lands focal for the city or larger areas include those devoted to: (1) the Denver Union Stockyards, (2) "automobile row," (3) certain greenhouses, (4) lumber yards, (5) second-hand mining

machinery, and (6) bulk oil plants. This classification is not entirely satisfactory. While most of these lands serve a rather large territory, some of them are focal for a trade area similar to that of the local retail shopping center. The relationship between the stockyards and the packing plants, for example, is a phenomenon of essentially local significance. Some of the lumber yards, too, are of only local importance. The city-wide, regional, and, in some cases, inter-regional relationships of these lands, however, should not be overlooked.

27. The Denver Union Stockyards, located in the north-central portion of the city pattern, take on regional and inter-regional importance in collecting animals from the livestock producing centers and in sending them to the Corn Belt for fattening.

28. "Automobile row" is located along Broadway south of Civic Center. Here most of the 69 new car dealers are located in a distance of twenty-one or twenty-two blocks. These dealers sell retail to Denver and act as distributors to dealers throughout the state. The localization of the automobile district is related to: (1) the fact that Broadway is the most traveled street outside the central shopping district, (2) the fact that the first dealers located along Broadway, which helped to attract other dealers because of (3) functional convenience. The "shopping around" which characterizes the purchase of automobiles is thus facilitated.

29. Certain of Denver's greenhouses distribute flowers to a considerable area, sending carnations, for example, to eastern markets. These greenhouses are, for the most part, located in the outer zone of the city. The climate produces a flower of unusual beauty and durability and helps to account for the sales in inter-regional markets.

30. The largest and most important lumber yards in Denver

are localized along the South Platte River and in the old Auraria section. These yards distribute to Denver, to smaller towns of the region, to the farming sections of the treeless plains, and to the mining districts of the Rocky Mountains. The localization of the yards is in part due to nearness to the railroads for shipping and receiving lumber and in part to the historical development of the city. The Auraria section of Denver was one of the first to become industrialized; power from the Mullin Ditch was available in this district; sawmills were erected early in Denver to supply the needs for building materials in the pioneer city. This combination of factors helped to establish and localize many of the lumber yards.

31. A rather large amount of land in the outlying commercial districts is utilized to store second-hand mining machinery. The largest continuous block of territory devoted to this purpose is along Brighton Boulevard, northeast of the central shopping district. Machinery from these yards, after being reconditioned, moves into regional, national, and international markets.

32. Most of the bulk oil plants are located just north of the South Platte River between the Burlington and the Colorado and Southern tracks and east of the stockyards between the Burlington and the Union Pacific. The localization of these plants is related to: (1) availability of ill-drained, unattractive land along the river unsuited to many types of urban use, and to the character of adjacent types of land use (as, for example, the stockyards), (2) rail transportation for receiving and shipping, and (3) accessibility to all parts of the city. These bulk plants distribute oil and gasoline to homes and filling stations in the city and some of them ship to a considerable surrounding territory in the Rocky Mountains, along the Colorado Piedmont, and to the western

section of the Great Plains.

CHAPTER VI.--LAND NOT UTILIZED FOR URBAN PURPOSES

1. Lands not utilized for urban purposes occupy approximately 28 per cent of the area of Denver.

2. Non-urban lands are located in two general areas: (1) in a band of varying width peripheral to the built up portion of the city, and (2) along the South Platte River, adjacent to the railroads and industrial districts. Most non-urbanized lands are used for agricultural purposes (either irrigation or dry farming) or lie idle.

3. Lack of urban development is due largely to: (1) the character of adjacent land utilization, (2) commuting time from the central shopping district, (3) the rugged character of some lands, a rugged quality which results from natural and cultural causes, (4) general lack of need for more land for particular uses, (5) the fact that some lands, which are not particularly suited to one type of use, are held for speculative purposes at prices too high to permit other types of uses, and (6) the flood hazard.

4. The districts in which urbanization has not taken place include: (1) the area adjacent to the South Platte River, (2) the northern district, (3) the northeast district, (4) the southeast district, (5) the southern district, south and east of the Denver Country Club, (6) the Overland Park district, (7) the Barnum district, and (8) the Sloan Lake Park district.

5. The area along the South Platte River has not become more urbanized primarily because: (1) much of this land is used for railroads and industrial purposes, a type of land use repellent to residential occupancy, (2) there is not need for all of it for industrial uses, (3) much of it is low-lying, poorly drained,

and subject to floods which occur rather frequently and quite suddenly because of the cloud-burst type of precipitation characteristic of the eastern side of the Rockies.

6. Urban utilization of the northern district is delayed chiefly because: (1) the industrial, railroad, and commercial forms located in the area repel residential development, and yet are not sufficiently numerous to utilize all the land, and (2) much of the land is too rugged, having once been devoted to gravel pits.

7. Urbanization in the northeast section of the city seems unlikely for some time to come. The northeast section favors industrial development in that: (1) there is abundant land for factory sites, (2) there are favorable zoning laws, and (3) rail transportation is available. It is handicapped because there is land available for factories in established industrial districts which afford all the advantages found in the northeast. Until more land is needed for factories, the inertia of established form in existing industrial sections will probably prevent the utilization of the northeast for industrial purposes. Residential occupancy is not particularly favored due to: (1) remoteness from the central shopping district, (2) unfavorable zoning laws, and (3) the unattractive character of adjacent land utilization.

8. The southeast district remains largely non-urbanized as a result of: (1) remoteness from the central shopping district, and (2) general lack of need for more housing facilities in this area at the present time.

9. The southern district has been delayed in its urban development primarily because of: (1) the flood menace of Cherry Creek, (2) the rugged character of the terrain which has resulted from uncontrolled stream erosion, and (3) the fact that much of this land is held in the hope of attracting high grade residential

forms, for which the area is not particularly suited, nor needed.

10. The area around Overland Park has been handicapped by: (1) remoteness from the center of the city, (2) the presence of a steep hill, the slope of which is so steep as to retard urban occupancy, and (3) general lack of need for more industrial and commercial land for which some of this land seems best suited.

11. Urbanization in Barnum is retarded because of: (1) lack of need for more houses of a type characteristic of this section (see Chapter II), (2) the rugged character of the terrain, and (3) the flood menace, particularly in and adjacent to the two gulches occupied by intermittent streams.

12. The Sloan Lake Park district has been left non-urbanized largely as a result of the general lines of city development to the north and south of this area and the lack of need for more housing units in this particular section.

GENERAL CONCLUSIONS

1. Of the total land area of Denver, approximately 36 per cent is utilized for residential purposes, 25 per cent for public purposes, 6 per cent for commercial purposes, 5 per cent for transportation and industrial purposes, and 28 per cent are non-urbanized lands.

2. The urbanized area of the city forms a star-like pattern with major axes to: (1) the south and northeast following the general course of the South Platte River, (2) the southeast following the ridge of higher ground known as Capitol Hill, and (3) the northwest and southwest on the higher ground in those directions. Between these radial extensions and beyond them there is a mixture of built up and non-urbanized land.

3. The central compact portion of the city, near the junction of Cherry Creek and the South Platte River, represents

the oldest part of Denver. It occupies a slightly eccentric position in the city pattern.

4. The city is not restricted by significant natural barriers in any direction, although the South Platte River forms a major break in the city pattern, dividing the city into two unequal parts.

5. The localization of functions and the various patterns of land use within the city are related in many ways to the characteristics of the site. To give but a few examples: the south-north course of the South Platte River helped to establish the north-south linear pattern of the railroad lands; this in turn was instrumental in bringing about a linear distribution of factories and commercial activities requiring rail service; the use to which the lands along the river are put accentuates the fault line quality of the river and makes the break in the residential pattern more pronounced. The higher ridges of ground, particularly those east of the river, have conditioned the principal lines of urban expansion. The course of Cherry Creek and the direction of the old road which ran toward the northwest, not quite parallel to the creek, helped bring about the street pattern of Auraria and the present central shopping district, respectively; the non-conformance of the street pattern of the business district with the rest of the city is an important factor in explaining the present boundaries of the district. Similarly many other land use patterns have developed and today the interplay of the various patterns is as significant in the present localization and distribution of functions as those characteristics of the site which helped to establish the original pattern.

6. Although Denver has developed without any comprehensive plan, the lands of the city are, in general, efficiently and

effectively utilized. Some exceptions are in evidence: (1) the railroad lands could be consolidated and much "waste land" between the roads might be utilized in a more productive and more aesthetic way than at present, (2) the fact that more land than seems desirable has been zoned for apartment houses and multiple dwellings in the Capitol Hill district is tending to keep that section in a static condition, or to bring about its decline, (3) the zoning of nearly all of the northeast portion of the city for industrial purposes, at a time when there seems to be little need for more industrial land, may be a retarding influence on residential development in that section, although due to other handicaps it seems unlikely that residential expansion in this area would take place, even though this unfavorable feature were removed, (4) a general lack of more recreational lands in the central, more congested portion of the city pattern is an unfortunate condition, (5) the opportunity which the city missed to develop a Federal Center similar to Civic Center is regrettable from the standpoint of city beautification, and (6) the extension of existing or the development of new radial streets would facilitate the movement of traffic from outlying areas, tend to relieve congestion on existing arterial streets, and make residential areas in the outer zone less isolated.

7. There seems to be plenty of land available for expansion of any or all types of urban land use to meet any foreseeable growth of the city. Reorientation of the present land use pattern seems unlikely. The fact that sufficient land is available for expansion of various functions in their present areas of localization and the fact that zoning laws tend to crystallize the existent pattern will be retarding influences to radical change. Development along present established lines will, in all probability, characterize any future expansion of the urban pattern of Denver.

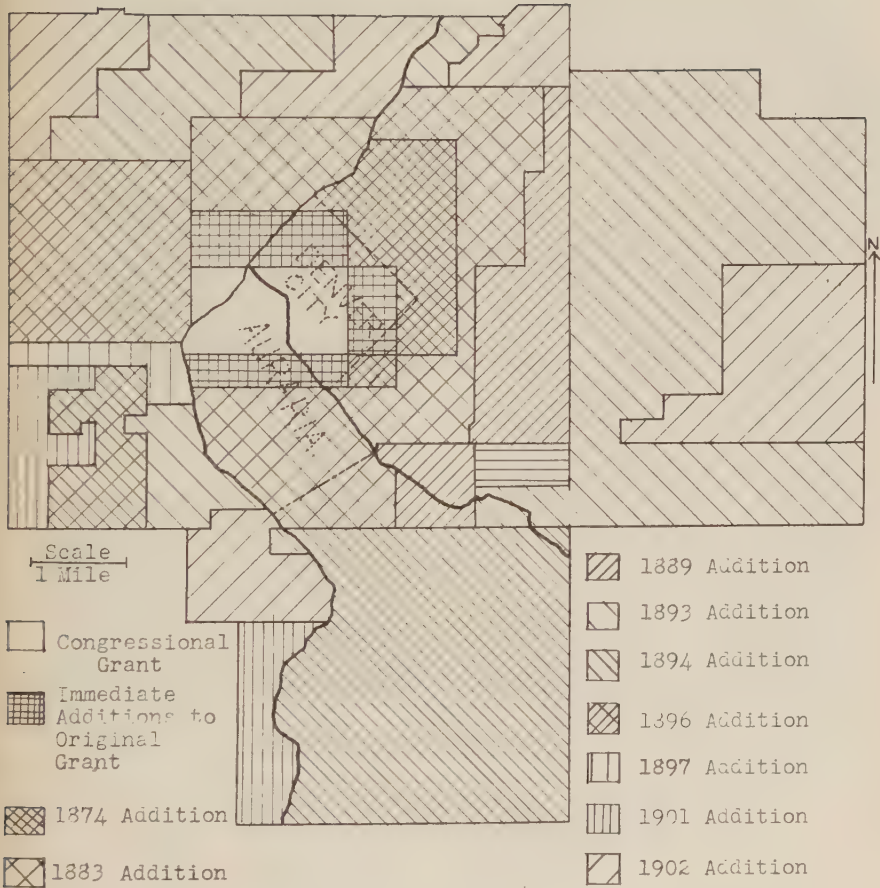


Fig. 1.--Original Congressional Grant and later additions to the City.

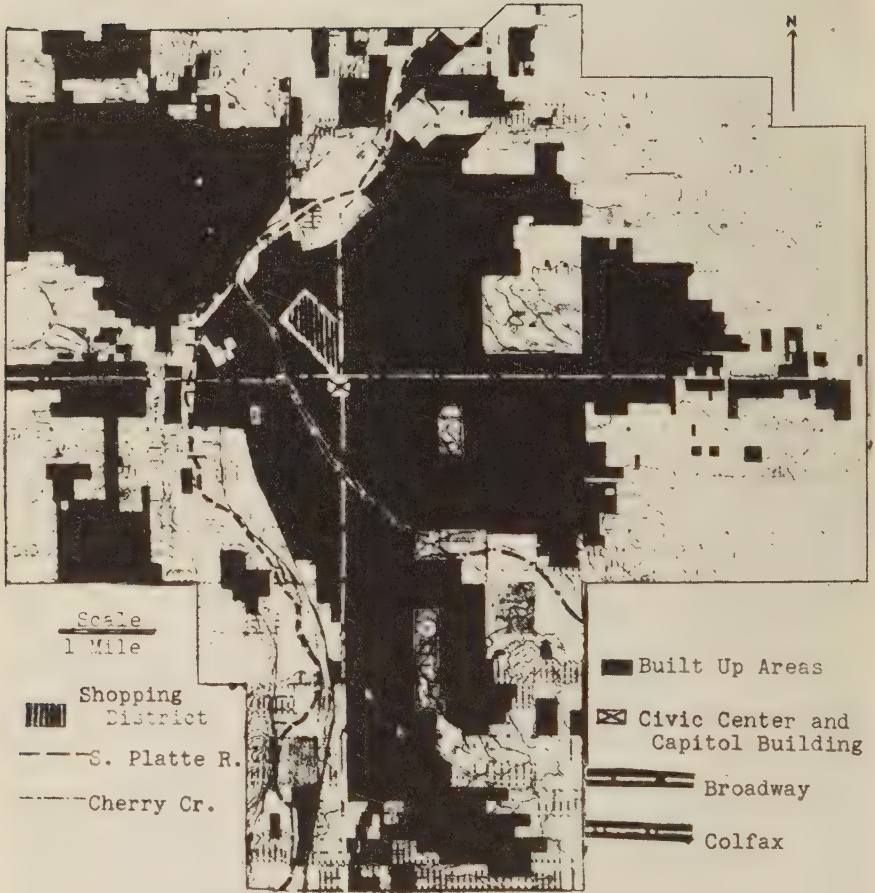


FIG. 2 - BUILT UP AREAS OF DENVER



Fig. 3.--Geological Map of Denver

